CLAIMS

1. A transmitting apparatus comprising:

a baseband signal former that changes an assignment of a modulated signal to a plurality of slots in accordance with transmission data and makes baseband signals in varying channel matrix patterns in accordance with transmission data;

a radio section that converts the baseband signals to radio signals; and

a transmit antenna that transmits the radio signals.

2. The transmitting apparatus of claim 1, wherein:

the transmit antenna comprises a plurality of antennas; and

the baseband signal former makes the baseband signals in varying channel matrix patterns for the plurality of antennas.

3. The transmitting apparatus of claim 1, wherein:

the transmit antenna comprises a plurality of antennas; and

the baseband signal former comprises a space-time block encoder that changes a pattern of a space-time block code in accordance with transmission data.

4. The transmitting apparatus of claim 3, wherein the space-time block encoder comprises:

a first modulator that makes a first transmission symbol from transmission data;

a second modulator that makes a second transmission symbol from the transmission data; and

a signal selector that receives the first and second transmission symbols, outputs to the plurality of antennas the first and second transmission symbols and signals representing complex conjugates of said first and second symbols, by changing an order of said first and second symbols and the complex conjugate signals in accordance with transmission data, and makes a space-time block code signal.

5. The multi-antenna transmitting apparatus of claim 3, further comprising a multi-carrier modulator that assigns a signal made in the space-time block encoder to a plurality of subcarriers,

wherein the space-time block code signal is subjected to multi-carrier modulation and transmitted at the plurality of antennas.

6. A receiving apparatus comprising:

a channel matrix estimator that estimates a channel matrix using a plurality of slots of data; and

a transmission data estimator that estimates transmission data based on a data assignment pattern to the channel matrix.

7. The receiving apparatus of claim 6, wherein the transmission data estimator identifies a pattern of space-time block codes received and estimates the transmission data.

8. The receiving apparatus of claim 7, wherein the transmission data estimator identifies a pattern of an estimated channel matrix employed between a transmit antenna and a receive antenna and identifies the pattern of the space-time block codes.

9. A wireless communication method comprising the steps of:

changing an assignment of a modulated signal to a plurality of slots in accordance with transmission data and making baseband signals in varying channel matrix patterns in accordance with transmission data, and transmitting the baseband signals; and

estimating a channel matrix using a plurality of sots of data and estimating transmission data based on a data assignment pattern to the channel matrix.